

WHAT IS CLAIMED IS:

1. An aqueous preservative composition for treating cellulose based products including wood comprising:

a preservative metal selected from the group consisting of copper, cobalt, aluminum, iron, lead, tin, cadmium, nickel, chromium, silver, zinc and mixtures thereof in a preservative amount;

a non-polymeric amine compound in an amount sufficient to solubilize the preservative metal;

a polyethylenimine compound in an amount sufficient to form a chelation complex with the metal; and

a vinyl based polymer selected from the group consisting of poly(vinyl alcohol), polyacrylamide, poly(N-vinyl pyrrolidone), poly(N-isopropyl acrylamide) and mixtures thereof;

wherein no precipitate is present in the aqueous wood preservative composition.

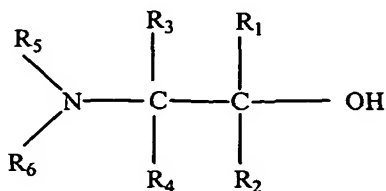
2. The composition of claim 1 further comprising an ammonia salt.

3. The composition of claim 1 further comprising ammonia.

4. The composition of claim 1 wherein the preservative metal is copper bearing material.

5. The composition of claim 4 wherein the copper bearing material is selected from the group consisting of copper metal, copper sulfate, copper acetate, copper formate, copper chloride, copper nitrate, basic copper carbonate, copper hydroxide, copper borates and mixtures thereof.

6. The composition of claim 1 wherein the non-polymeric amine is selected from the group consisting of triethanolamine, ethylamine, diethylamine, ethylenediamine, ethanolamines having the following structural formula I:



I,

wherein R₁, R₂, R₃, R₄, R₅, R₆ independently = H, -CH₃, or -C₂H₅; and mixtures thereof.

7. The composition of claim 1 wherein the non-polymeric amine is present at a concentration between about 0.15% and about 10% by weight.

8. The composition of claim 1 wherein the non-polymeric amine is present at a concentration between about 0.15% and about 7.20% by weight.

9. The composition of claim 1 wherein the polyethylenimine compound has a molecular weight between about 100 and about 70,000.

10. The composition of claim 1 wherein the polyethylenimine compound is present at a concentration between about 0.01% and about 40.0% by weight.

11. The composition of claim 1 wherein the polyethylenimine compound is present at a concentration between about 0.1% and about 2.0% by weight.

12. The composition of claim 1 wherein the polyethylenimine compound is present at a concentration between about 0.01% and about 2% by weight.

13. The composition of claim 1 wherein the vinyl based polymer is present at a concentration between about 0.01% and about 8% by weight.

14. The composition of claim 1 wherein the vinyl based polymer is present at a concentration of from about 0.1% to about 1% by weight.

15. The composition of claim 1 further comprising a biocide.

16. The composition of claim 15 wherein the biocide is selected from the group consisting of fungicides, insecticides and mixtures thereof.

17. The composition of claim 16 wherein the fungicide is selected from the group consisting of azoles, quaternary ammonium compounds and mixtures thereof.

18. An aqueous preservative composition for treating cellulose based products including wood comprising:

between about .01% and about 15% by weight solubilized copper;

between about 0.15% and about 10% by weight non-polymeric amine;

between about 0.01% and about 40% by weight polyethylenimine having a number average molecular weight between about 100 and about 70,000; and

between about 0.01% and about 8% poly(vinyl alcohol).

19. A method for treating a cellulose based product including wood which comprises:

applying to the cellulose based product an aqueous preservative composition for treating cellulose based products including wood comprising:

a preservative metal selected from the group consisting of copper, cobalt, aluminum, iron, lead, tin, cadmium, nickel, chromium, silver, zinc and mixtures thereof in a preservative amount;

a non-polymeric amine compound in a solubilizing amount;

a polyethylenimine compound in a chelation complex forming amount; and

a vinyl based polymer selected from the group consisting of poly(vinyl alcohol), polyacrylamide, poly(N-vinyl pyrrolidone), poly(N-isopropyl acrylamide) and mixtures thereof;

wherein no precipitate is present in the aqueous wood preservative composition.

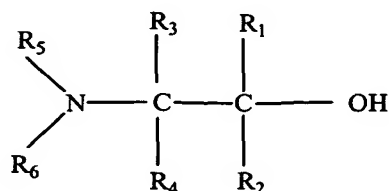
20. The method of claim 19 wherein the aqueous preservative composition further comprises an ammonia salt.

21. The method of claim 19 wherein the aqueous preservative composition further comprises ammonia.

22. The method of claim 19 wherein the preservative metal is a copper bearing material.

23. The method of claim 22 wherein the copper bearing material is selected from the group consisting of copper metal, copper sulfate, copper acetate, copper formate, copper chloride, copper nitrate, basic copper carbonate, copper hydroxide, copper borates and mixtures thereof.

24. The method of claim 19 wherein the non-polymeric amine is selected from the group consisting of triethanolamine, ethylamine, diethylamine, ethylenediamine, ethanolamines having the following structural formula I:



I,

wherein $R_1, R_2, R_3, R_4, R_5, R_6$ independently = H, $-CH_3$, or $-C_2H_5$; and mixtures thereof.

25. The method of claim 19 wherein the polyethylenimine compound has a molecular weight between about 100 and about 70,000.

26. The method of claim 19 wherein the polyethylenimine compound is present at a concentration between about 0.01% and about 40.0% by weight.

27. The method of claim 19 wherein the polyethylenimine compound is present at a concentration between about 1.0% and about 40.0% by weight.

28. The method of claim 19 wherein the vinyl based polymer is present at a concentration between about 0.01% and about 8% by weight.

29. The method of claim 19 wherein the aqueous preservative composition further comprises a biocide.

30. The method of claim 29 wherein the biocide is selected from the group consisting of fungicides, insecticides and mixtures thereof.

31. The method of claim 30 wherein the fungicide is selected from the group consisting of azoles, quaternary ammonium compounds and mixtures thereof.

32. The method of claim 19 wherein the cellulose based
5 product is flooded with the preservative composition under vacuum.